

"Made available under NASA sponsorship  
in the interest of early and wide dis-  
semination of Earth Resources Survey  
Program information and without liability  
for any use made thereof."

## PHENOLOGY SATELLITE EXPERIMENT

ERTS-1 Proposal No. MMC 159

Bernard E. Dethier, Principal Investigator  
GSFC No. UN 057

Progress Report for Period 10/08/73 - 12/08/73

Accomplishments during this reporting period include:

A. A summary of forest phenological events observed on the ground observation photos has been compiled. Negatives of ERTS frames, bands 5 and 7 have been made showing the sites at all available dates. A set of prints have been made from about half of these negatives with the exact forest sites located on them. The remainder will be completed within a few weeks. A densitometry (involving bands 5 and 7) and band-to-band ratio analysis for all sites over all dates has been nearly finished and will be completed by the next reporting period.

B. A guideline for assessing vegetation changes using ERTS-1 Satellite Imagery was prepared at the University of Maine for an Imagery Interpretation Workshop at Montana State University. In this way, uniform work procedures were achieved for both the eastern and western corridors. (See Publ. and Papers).

C. All statistics for the eastern corridors have been revised and in some cases, enhanced using information provided by the imagery interpretation groups. The statistics charts contain the spectral response values and their standard deviations for each date as well as the solar elevation angle (to be used for atmospheric and solar angle corrections) and the Band Ratio Parameter (BRP) developed by the Remote Sensing Center, Texas A & M University.

Black and white 35mm pictures have been taken for about two-thirds of the Brown and Green Wave data from all corridors. Color 35mm slides are being taken of at least one good date for each site.

D. Vertical shots of forest canopy taken at the 14 sites in the eastern corridors are currently being analyzed using Digicol Processor equipment in order to obtain quantified data. These ground observations for the Brown and Green Waves will then be correlated with ERTS-1 imagery.

E. Photography at the 24 ground observations sites ceased in November after having documented the Brown Wave 1972, Green Wave 1973, and Brown Wave 1973. Data from the phenology networks have been analyzed for the Green Wave 1973 and analysis is continuing for the Brown Wave 1973.

F. The following data has been analyzed for the Brown Wave 1972:

|               |               |
|---------------|---------------|
| Snowville, UT | 26 Aug, 6 Nov |
| Charto, MT    | 28 Aug        |

(E74-10289) PHENOLOGY SATELLITE  
EXPERIMENT Progress Report, 8 Oct. - 8  
Dec. 1973 (Cornell Univ.) 2 p HC \$3.00

CSCI 02F

G3/13

N74-17079

Unclas  
00289

F. (Continued)

The following data has been analyzed for the Green Wave 1973:

|               |                                      |
|---------------|--------------------------------------|
| Snowville, UT | 22 May, 16 Jul, 20 Aug               |
| Logan, MT     | 30 Mar, 27 Jun, 15 Jul, 16 Jul       |
| Kanosh, UT    | 15 Apr, 16 Apr, 4 May, 22 May, 8 Jun |
|               | 27 Jun, 14 Jul, 15 Jul               |

Most of the remaining tapes for the western corridors are on hand and being analyzed for the 1973 Brown Wave. A few tapes are expected in January 1974. The tapes for the eastern corridors for the 1973 Brown Wave have been ordered but have not yet been received. This delay will probably result in the need for an extension without additional funding.

Publications and Papers:

Ashley, M. D. and J. Rea, Guidelines for Assessing Vegetation Changes Using ERTS-1 Satellite Imagery, Prepared for an Imagery Interpretation Workshop Montana State University, Oct. 12-15, 1973.

Dethier, B. E., Satellite Sensing of Seasonal Vegetational Changes, Paper presented at Northern New England Remote Sensing Fall Conference, Univ. of Vermont, November 1973.

Hopp, R. J. and B. O. Blair, Plant Phenology in Eastern and Central North America, I. Development of Networks and Preliminary Results, Bull. 677, Agr. Exp. Station, Univ. of Vermont, Burlington, Vt., Sept. 1973, 20 pp.

Dr. Bernard E. Dethier  
Principal Investigator